

## CLAIMS

What is claimed is:

- 1 1. A method of managing a shared object in an object-oriented environment, the method  
2 comprising the steps of:  
3 generating only a single instance of said shared object in response to attempts by a  
4 plurality of clients to create an instance of a particular object belonging to a  
5 class to which said shared object belongs;  
6 a first client of said plurality of clients invoking a first method of said shared object to  
7 register an observer object to notify about an event related to execution of a  
8 particular operation;  
9 each client of said plurality of clients invoking a second method of said shared object  
10 to request execution of said particular operation; and  
11 when the shared object performs the particular operation requested by the first client,  
12 sending a first message to each observer object that has been registered for the  
13 particular operation requested by said first client.

- 1 2. The method of Claim 1, wherein the steps further include sending a  
2 second message about another event related to execution of the  
3 particular operation requested by the first client to said observer object  
4 that was registered by said first client.

- 1 3. The method of Claim 2, wherein:

2       the step of each client of said plurality of clients invoking a second method includes  
3                said first client invoking said second method to request a first operation that  
4                includes a first subtask and a second subtask;  
5        wherein the first message to the observer object registered by the first client is sent in  
6                response to completing execution of the first subtask; and  
7        wherein the second message to the observer object registered by the second client is  
8                sent in response to completing execution of the first subtask.

- 1       4.      The method of Claim 1, further including the step of a first client invoking another  
2                method of said shared object to register another observer object about another event  
3                related to execution of said first operation; and  
4                wherein said other method is different than said first method.
- 1       5.      The method of Claim 1, further including the step of said shared object creating, for  
2                each client of said plurality of clients, a client specific object that stores data  
3                associated with said each client.
- 1       6.      The method of Claim 5, wherein the method further includes invoking a particular  
2                method of said client specific object created for said first client that returns  
3                information that may be used to access the observer object that was registered by said  
4                first client.
- 1       7.      The method of Claim 5, wherein the steps further include:  
2                said shared object invoking a method of said client specific object; and

3           in response to said shared object invoking the method of said client specific object,  
4                   storing a reference value to the observer object for said first client.

1       8. The method of Claim 5, wherein the step of invoking the method of said client  
2           specific object is performed in response to the attempt by said first client to create an  
3           instance of a particular object belonging to a class to which said shared object  
4           belongs.

1       9. The method of claim 1, wherein the steps include:  
2           for each client of said plurality of clients, performing the following steps when the  
3           shared object performs the particular operation requested by said first client:  
4           identifying said each client;  
5           determining whether said each client has registered an observer object about  
6           the event related to execution of the particular operation requested by  
7           said first client; and  
8           if said each client has registered an observer object, then sending a first  
9           message to said observer object by invoking said second method of  
10          said observer object.

1       10. The method of Claim 1, wherein the step of sending a first message to each observer  
2           object that has been registered for the particular operation requested by said first  
3           client includes sending a first message to each client of said plurality of clients.

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4 plurality of clients to create an instance of a particular object belonging to a  
5 class to which said shared object belongs;  
6 a first client of said plurality of clients invoking a first method of said shared object to  
7 register an observer object to notify about an event related to execution of a  
8 particular operation;  
9 each client of said plurality of clients invoking a second method of said shared object  
0 to request execution of said particular operation; and  
1 for each client of said plurality of clients, when the shared object performs the  
2 particular operation requested by said each first client, sending a first message  
3 to each observer object that has been registered for the particular operation  
4 requested by said first client.

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